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RALPH S. JOHNSON

Upon review of Ralph Johnson's record of achievements, one realizes he qualifies for all of aviation's honors. In 1991, he was named "Elder Statesman of Aviation" by the National Aeronautic Association and the Washington D.C. Aero Club. Just previously, the National Aeronautic Association, United Airlines and the Airline Pilots Association honored him for his extraordinary contributions to air safety.

Growing up on an Indiana farm, his flying career began in 1930 after graduating from Purdue University with a degree in aeronautical and mechanical engineering. He became an Army pilot, one of only four to complete the rugged flight program. He was chosen as personal pilot for Gen. Winans, Commander of the Western Division National Guard and Reserve Units.

In 1933 he became a "mate" (co-pilot) flying Ford Tri-Motors for National Air Transport, which was absorbed by United Air Lines. He was named chief test pilot in 1934.

During the early years of WWII, he was responsible for developing and testing a myriad of programs all aimed toward air safety. He test flew hundreds of Boeing B-17s, B-24s, C-87s, DC-4s and PBYs modified by United's Modification Center in Cheyenne. He developed the stabilized approach taught to all USAF multi-engine pilots and produced a movie called "All Weather Flying Methods" used by all the training commands.

At the end of the War, United moved to San Francisco. Johnson elected to stay in Wyoming. He invented spraying equipment to adapt war planes for use in agricultural aerial application. He also served two terms in the Wyoming State Legislature.

His many and varied contributions to the aviation industry are the legacy of Captain Ralph S. Johnson. He and his wife, the former Ruth Bond, reside in Scottsdale, AZ. They have three children and six grandchildren.

INTERVIEW WITH RALPH S. JOHNSON, NOV. 16, 1977,CHEYENNE, WY. BY RED KELSO

J-JOHNSON

K-KELSO

Ralph S. Johnson was born on a farm near Goodland, Ind. One of 10 brothers and sisters 89 years ago to parents of German and Welsh ancestry whose persuasion for hard work and education was instilled into their children at an early age. Those teachings are with him still. At the age when most men are either long retired or thinking strongly in that direction, men many years his junior--and in fairly good shape--have a hard time keeping up with him both physically and mentally.

Machines have always attracted him and the farm was a good training ground for this future aviator. He kept the family's farm equipment in good operating order, and his mechanical ability helped him earn his Mechanical and Aeronautical degree from Purdue University in 1930.

"I would spend my summer vacation farming and repairing machinery for our neighbors," he said. "I also waited tables to pay school expenses."

His entry into aviation was a fluke, pure and simple. While he was an ROTC cadet at Purdue word got around, unofficially of course, that the Army was interested in gaining some flyers. "So, a lot of ROTC cadets were traveling to Chanute Field, Ill. to take physicals. And a lot of them were flunking. Well,being a country boy, worked hard all my life, I thought I would go over there and take the exam. It was really on a dare. A lot of my buddies said I couldn't pass it. Well, I passed," he laughed.

"A few weeks later, out of the blue and without notice of any kind," he recalled. "I received orders to report to March Field, CA. for flight training. I think my degree in aeronautical engineering had a lot to do with it,"

K- Did you sign any papers when you took your phsical? Was there any obligation on your part if you passed the physical?

J- I think not. The Army made that decision. If they wanted you they would call you. There was a lot of psychological evaluation involved.

K- Actually you sort of fell into aviation.

J- Yes. I should have really been an automobile designer because my experience was along those lines. I was always interested in automobiles. I should have gone with General Motors or Ford. Even then, at that time, I had a lot of ideas, but it didn't work out that way. I happened to go the other way. I think many things are accidental.

K- How long was the flight training?

J- The flight training there was, I believe for one year and then we were transferred to Kelly Field for the final stage of training for an additional year.

K- Two years!

J- Wait a minute, what was it? I think it was in eight months stages. Eight months at March Field and four months at Kelly Field. Then two years of active duty. And you couldn't stay in. There were no funds to retain people in those days. It was during the depression years. I had several generals try to make an exception in my case.

I became the pilot, personal pilot for Gen. Wyman because I was considered fairly good and flying tri-motor aircraft. I was flying a Fokker tri-motor and we traveled all over the west, visiting the different national guard and reserve units. He tried to get an exception for me. However, higher command would not listen to that because they were too tight on money. So, when my turn terminated at San Antonio I didn't have anything to do. So another fellow and I decided to spend the winter up in the Santa Cristo Mountains above Florance, Colorado. A fellow was running a little toy factory up there there and helped him for about eight months.

Though correspondence I sent out my resume and I got a job with Ball brothers, the Mason Fruit Jar people in Muncie, Ind. They had built an airport there. Two Ball brothers were students of mine.

While there, Clyde Shockly, quite a famous person in that area of the country, was head of operations for the Ball brothers on the airport and was a Waco dealer. Through some of his trading Clyde got a Sikorsky F-39 amphidian, which is a single engine amphidian. Only a few of them were built and so the he assigned me to fly it up to Lake Wawasse in the summer time taking tourists up flying and landing on the lake, then into the Chicago Worlds Fair in the F-39. In fact that's how I got my job with NAT (National Air Transport). I would land on the lake, and taxi up and let them off. They would go off to the Fair. Then I flew the plane to the Chicago airport which was just a cow pasture in those days and taxied up in front of NAT's hanger for refueling. There I met Chief Pilot Walt Evens--who remained as Chief Pilot for United Airlines some 20 years later. Walt was a great funny man. He looked that (F-39) over and I told him I would like to be a co-pilot for NAT. He took another look at that airplane, and said, "anyone that can fly that airplane, and you apparently can, is welcome." And he gave me a date I was to appear. So that was the beginning of my airline career,

NAT was then the remnants of the old Stout Airline which operated between Detroit and Chicago. Henry Ford decided to give up in the manufacture of airplanes, the Ford Tri-motor, and so Stout, of course, couldn't manage an airline himself financially so NAT acquired these airplanes. We flew them to Chicago-New York and I was the co-pilot.

The co-pilot was quite an important person in those days (laughter). The Post Office equipped him with a Colt .45. He wore it on his side to protect air mail letters that was going between grandma or grandpa back and forth across the country. We had to protect the mail. We (laughter) had to protect the mail. We stored the mail--we took the mail bags out of an old beatup truck of some kind then we were in charge of the mail sacks and had to store them in the Tri-Motor Ford. The baggage pit was in the bottom of the wings and it was a high wing airplane you know, and you had a long handled crank you would spin and it would let down the back side of the baggage cage located under the trailing edge of the wing. You put in the baggage and mail into the wing.

Then your duty of course was--on your way through the cabin and strap everybody in. Then go up and sit in the co-pilot's seat and hold on to the Johnson bar. This was the brake handle in the middle of the cockpit and you wrapped your knee around that and pulled with all your strength. If you wanted to turn right you put all your strength in that direction. If you wanted to go the other way you put all you "pull" in that direction. After that, after the airplane was in the air--then the next matter of duty, after a little while was to go back and pacify the passengers and pass out box lunches. This went on for a year or two then stewardesses started to appear. They were nurses.

The co-pilot wasn't recongnized as being very big in the esteem of the operation because he was not called co-pilot. He was called "Mate" and he had a little bar across his wings which --I still have mine--which reads "Mate." I think the captains had a good deal to do with this. I don't think they wanted the idea that there were two pilots and they damned well seen that they were No.1 in command of the airplane.(laughter).

K- That leg between Chicago-New York was known for its vicious weather.

J- Yes. It gave us a lot of trouble. No one know enough about weather to even tell anyone else about it. I'm sure there was many pilots who would liked to have told you so they-you-have a fair grasp of what causes weather. Fog, rain, snow and so forth and so on but I don't really think they knew themselves well enough to feel sure they could give you an honest parameter to go by. When it was going to fog in at Newark, Chicago or Cleveland or snow. In fact there was very little published regarding weather. No one knew anything about weather. As a result we didn't know what we shouldn't do--we didn't even know what we shouldn't try to do and some of the things we tried to do we should not have tried to do. Unfortunately, of course, in a situation like that that, many lost their lives. Many of my friends gave their lives for the education that the rest of us got. Some of it was mechanical failures, engine failure mostly.

We had some pilots who were famous for forced landings and one of those men was John Wolf. I remember one time--let's see--leaving the operations office at Cleveland and Al Schmit was in charge of the operations. He was sitting there about 11 o'clock one night with his feet up on his desk and I asked, "Al, has John reported in?" John Wolf-he was in a single engine-B-95--bringing in the mail alone. The weather was too bad for anything else, so they dispatched him from Newark in a B-95 with the mail. Just the mail.

"No I'm not worried. He'll call in from some apple orcharrd". And lo and behold he did! That's exactly what he did. He called in from an apple orchard near Oil City, PA and he politely told them he didn't think they could fix the airplane.(much laughter).

They sent a crew out there, of course, but he was famous for making many, many forced landings in the lousy weather and hardly ever got a scratch. His life story would make your hair just stand straight up and I was his co-pilot many times. Some of my hair is still standing straight up. He was an intrepid bird man as were a good many of them. But it was born of ignorance really. Because there was no history to go by. The other thing was very poor instrumentation. All the early airplanes had the first gyro and it was the turn and bank--they didn't have artifical horizon or directional gyro so on the tri-motored Ford we had air speed, altimeter and turn and bank plus the engine instruments.

K- Needle, ball and alcohol.

J- Yes, well, you can kind of imagine flying thunderstorms with turn and bank but that's what we did. I remember one time, with Capt. Kaiber, he had me flying--he kinda liked to put me in a spot where I had all I could handle and he would set there and laugh. We went into a thunder storm this side of Toledo one night--we really didn't know better and we really wrassled that thing--and I'll tell you that airplane was bouncing around so much he (Kaiber) couldn't even grab the wheel. So he just set back and laughed while the thunder storm just shook the very rivets loose in that machine. We came through all right and I'm not kidding--we didn't know better. Now people don't do that stuff any more. They have radar telling them the thunder storm is there and stay away from it. You'd thought some day we would learn to stay away from them but we really didn't.

K- Apparently those old birds were put togeter pretty good.

J- That Ford was just a fine machine. It was made from corrugated aluminum and it had a lot of strength in it. The wings, fortunately, were built very strong otherwise we'd have lost some of them. We never had a structural failure in the old Ford. I don't think we ever lost a Ford--in fact we only had them for about two years. The NAT and Boeing Transport bought Boeings 247 monoplane, the first low wing monoplane and NAt bought some of them also.

I think along about that time the companies joined to make United Airlines--with Pacific Air Line on the west coast. Varney Airlines down through Boise to Salt Lake City and then Boeing Transport to San Fransico to Chicago and National Transport into New York.

Then about that time we put all that together with W. A. Patterson as president. For some reason or another FDR decided that putting these airlines together in this manner was a monopoly operation. He hadn't grown up to the idea that airlines need big terminals. We also had another route (I've forgotten the name of it) to Dallas. Chicago to Dallas--that was the whole combination of United. FDR made United divest itself from the Dallas route--I'm sorry he even did it but he did. Also, you know how it turned out, after losing 26 military pilots and their aircraft in their attempt to fly the mail while FDR had grounded these airlines themselves the airlines continued on with a skeleton schedules flying passinger out but no mail and no subsidy.

Naturally 26 of those pilots killed, some of them were my friends, friends who I had trained with and we knew they would never survive because we had flown the same equipment in the Air Corps that they had and they did not have vacuum pumps to furnish vacuum for turn and bank instruments. They had venturies outside--and these venturies would ice up and there was no vacuum and the poor fellow was stranded up there in the sky with nothing to tell him if he was right side up or what he was doing and they perished. It was a terrible, terrible tragedy and we could see it going on around us and there was nothing in the world we could do about it. It was a political decision entirely. After that fisasco they gracefully as they could restored the airlines to carry the mail.

K- Ralph, in all of yours years flying with United and testing you must have had a few close shaves.

J- You know another thing about the airlines in those early days was, maybe this is a departure for me, was not only were we in a learning stage--weather, equipment, radios, navigation, about almost every thing. But the toll was being taken all this time . We lived in constant apprehension that either me or some of my buddies wouldn't be here because the accidents were happening on a pretty regular schedule. Many of them were due to weather and those rolling hills of Pennslvania. You don't consider those as mountains now. You can take your Cessna and fly over them and you don't even think of them as mountains. Kralltown, PA area--there's a valley that runs through there that was considered--to Allentown--those mountains was considered the graveyard of America for airplanes in those early day---

K- I've heard about that area. Why?

J- First of all the engines were low powered engins. The pilots were trying to sneak through them to the east because of the weather. We had lots of low hanging weather and we didn't have the radio equipment really to be up there in it. And the way into the airport was timing on the ADF and time their way through those high mountains. So that the progress of aviation has been well paid for in the memory of some of those who have gone before us. Quite a number of them were close, personal friends.

As soon as the machines were able to get the power and move up and over the mountains, the accidents just tapered off. The highest mountains today aren't even like the Pennsylvania mountains because up there 30,000 to 40,000 feet there's no mountains. Safety has become a very real thing and its wonderful.

K- Ralph, you have undoubtedly had some extremely close shaves in this business as long as you have been it. You couldn't help but have a few mighty close ones. But a person, I'm thinking of my own experiences, has a defensive mechanism in him to think of things besides the fact that within the next few minutes-even seconds-that he is going to die. In addition, I feel that a person tends to remember the good times and more or less forget the bad times. Have you ever been in this situation? Have you ever had a crash?

J- Not in an airliner. In a training plane one time we had an accident because a tractor went out onto the runway and wasn't seen. An instrument take-off was being made. The co-pilot who I was giving a check ride was under the hood and I couldn't see ahead because my view was blocked by the pilot up front. When we were well down the runway and the tail came up I could see the tractor was mowing on the airport. He came up and turned around on the runway and (much laughter) we got the job about four feet in the air before the tractor driver heard us. We felt quite a jolt. I looked around--I couldn't imagine what in the world was keeping this plane flying (laughter). This was an open cockpit biplane that United had, it was a 40-B, it was the only one left and that was it.

K- And that's the only accident you've had in thousands and thousands of flying hours--

J- We had to go on up because they (United) was unloading passengers and we didn't want the passengers to see this so we went ahead and flew. The stringer wires were loose, the wings were going like this(waving his arms), the gas tank (laughter) was sticking out the bottom of the plane (upper wing), one wheel was sticking up into the bottom wing (more laughter)and we were up there around this airport for about 45 minutes--until United flight got out of town--then we came in and made a one wheel landing.

K- You have a remarkable record.

J- Well, I am pleased about that. I've never have lost anything (planes) but I've lost a lot of friends in this business through the years so that the effort has been paid for--someone had to pay for it. As far as danger is concerned there has been there has been times when we were danger and one time I never did think we would survive it. We had about an hour and 30 minutes to two hours to think about it.

We were in weather and couldn't get out of it. We lost an engine--in the old 247--and that airplane was just barely staying in the air on one engine--with passengers of course--it was the wildest thing I've ever seen, it seemed that everything was against us. And we were carrying some ice. It started out as a freezing mist. It was a situation which became more severe all the while. Then, strangely enough, the radios went out. We had no communications. We couldn't tell anybody what was going on. All they knew was that we were overdue.

All the while we were chugging along on one engine-we only doing 80 MPH. We just wasn't going anywhere and the last 45 minutes of that flight the oil pressure on the good engine dropped quickly. I saw it go--It happened so quickly. I happened to be looking at it at the time. I saw the go from (the oil pressure in those days was 65-70 psi) I saw the needle go down to 10 psi I showed it to the pilot who was John Wolf, I showed it to him and at that point, you say to yourself, we were just barely making it the way it was, how in the living hell can we make lit from here on. We had no place to go because snow, sleet, ice and everything coming in off the lake--on our way from Buffalo to Cleveland--we couldn't see--we were on instruments--just, snow squalls, the hardest thing, I ever saw a man do. John did it. He finally, "Well I don't think we can make it over Cleveland. I think we have to go just a little east of Cleveland and come in on the south because I don't think we have the altitude enough to clear the buildings."

And here we were are at 80 MPH and the prop on the dead engine would start-stop-start-stop and the good engine was doing its very best with 10 pounds of pressure. We never did see the high lines we know they were 32,000 volt electric lines running from Cleveland down to Bedford, we don't know if we went over them or under them. But we could see the airport-it was just a cow pasture, no runways, just grass, and we never even touched the throttle to land. We never changed a damn thing. Full power (laughter) on one engine. I stayed over at Cleveland because I wanted to know what the matter was with that engine. I was supposed to go on to Chicago, but they had another co-pilot and airplane waiting for our passengers, so we were relieved.

I stayed and went over to the hanger and watched them uncowl and see what in hell happened to that engine. It had a cracked oil line and we had roughly a quart of oil left in the good engine. And the explanation was that the oil line was on the suction side. It was a little "T" they had welded on the side. It was the welded `T' broke so the engine was sucking in air and oil and that accounted for the drop in pressure so that engine was running on an emulsion of air and oil.

K- Did you find out what caused the other engine to konk out?

J- Yes. The other engine had a crystalized rocker arm bearing assembly that held the intake drive open so it just kept back firing. You'd thought we were carrying dynamite the way it was backfiring. We had to shut it off. It just was backfiring into the induction system. It just wasn't doing anything--not with the intake valve open.

K- What about your private life? Where did you meet Mrs. Johnson?

J- Right here in Cheyenne.

K- Is she a native of Cheyenne?

J- No. She is a native of Tennessee. But after graduating--I don't know--her sorority decided they were going to come out west to Colorado Springs for a convention or something. And she came out with her brother who had married Helen Farthing and he was stationed here--not at the time--but he had been stationed here--he was in the Army and became a general in the Army under Patton.

K- What was his name?

J- Gen. Vanburen(?) Of course, he wasn't a general then, but Ruth decided she would come up and see the Farthing sisters. So the Farthings brought her to a party at Bill Boice's home and I was invited to the party and met her there.

K- And how many years----

J- She tried to get away from me (laughter) but a year or two later and going down there once or twice....

K- You saw a good thing and by golly, you weren't going to let her get away.

J- (much laughter) Right!

L- Now, she has probably raised your family pretty much on her own...

J- You mean because of absences.

K- Yes.

J- Well, it's true. During the war, I was gone a great deal but while I was flight testing and research, I was here most of the time.

K- What year were you married?

J- 1937

K- Then you were pretty well established as a married couple before the war.

J- Yes, and we had one or two of the children at that time--Allen and Janet. Steve, he kind of slipped through the back door. We had almost forgotten about him when he showed up. But we're certainly glad he showed up.

K- Now, we're getting you down to Georgia.

J- Yes, Bainbridge.

K- You still have anything in AZ?

J- Yes, we have two maintenance bases. One is at Douglas, AZ. and the other one is at Bainbridge.

K- What are you doing in Douglas as of now?

J- We're modifying and equipping a C-54 for slurry--for forest fire slurry.

K- Think of the load that thing can carry.

J- Roughly 2,000 gallons

K- That weighs...

J- Ten tons. It's sort of a case of nostalgia for me getting into the C-54 and flying it again after flying it across the Pacific for--as much as we did. Those were really wonderful years. Even with the terribly long hours. But I have to confess I enjoyed it. Watching those big props rotate. At least on a propeller airplane you can see something running.

You know, talking about the propeller, just to give you an idea how fast things change. I trained in the air force on six propellers--some of them old wooden props--just plain wood--with the old liberty motor, you know, it had that great big wooden propeller with a brass on the leading edge of it. Then, the next thing--when I came to National Air Transport, we had four tri-motors, and those were six props.

Then we got the Boeing 247B and formed United--and they were two position propellers. You moved a lever in the cockpit and you would have high or low pitch. Take off in low pitch and when we got to cruising altitude, we would go to high pitch. That kind of pictured the speed range of the airplane. The speed range wasn't very much because your takeoff was 80 mph, roughly that, and you would cruise at 125, 135, 140, right in that range.

The next thing that came was the controllable propeller with a governor to vary the pitch so that all you had to do was advance the throttle and the engine would absorb the hard part. Imagine the short time all this took place. The fixed pitch in 1933, the two position in 1934 and latter part off '34, the controllable prop--constant speed, we called it--and in 1935 the feathering prop.

K- In four years!

J- In four years time. We went through that whole perameter. We did it right here in Cheyenne. We were the field representative of Hamilton Standard--you might say this was their research work.

Ray Kelly was in charge of research for United and he would do everything they wanted researched. He would make up a little folder, send it out to Cheyenne and tell what the item was and what we should do to it; how we should follow up and make reports on how this thing worked. I would--it was up to me to follow them all through the shops, constantly follow what was being done on them; how they were working out, what headaches we had, I had to take care of all that stuff. At one time, we had 124 tests going. That's where the future of the world's airplanes came from. They came out of that melting pot.

K- Now, back to Bainbridge where your PV-2s are located.

J- Before we go into that, I want to make a comment that other airlines were doing similar things like that. I don't want to give the impression that we were the only ones that were improving things.

K- Well, I imagine they were watching you pretty closely--and you were watching the others.

J- No, we really didn't know what they were doing. We were too damn busy with our own stuff. But they got in the habit of calling us if they got in trouble--they would call us.

Another program I started early on with my work at United, was that early in the game we realized we needed a well coordinated crew to be more effective performing the job in the airplane. I developed a little coordinater instrument to help carry this out. It said that functions be done in a certain order at a certain time.

You can design against improper management and possible accidents or the causes of accidents just by changing the sequences of the pilots. When they do what and who does it. We were able actually to wipe out some of the things that were hazards. A lot of people believed that would not be possible, but it is one of the most fruitful things you can study in your little airplane. How you do what and in what order.

K. In the bigger airplanes?

J. In the bigger airplanes. Of course, you can plan in advance and you don't have all those things to do as you approach the airport. It's been done on a progressive basis and everything is organized and prepared for what is coming. We did a lot of work on that. Advanced planning in some respects instead of trying to learn we do this and then you do this, or you do that, reaching across the cockpit and trying to organize it like this.

We developed a loop antenna which became the heart of the ADF.

K- Developed here in Cheyenne by United?

J- Yes. It was a fixed position on the airplane at first. Learning how to fly the airplane and locate ourselves in relation to the station. I made a little timing program out of it and we would fly 90 degrees from the station. That was the null, so we were flying cross course and then we would fly for one minute and then turn the airplane again for the new null and register those degrees to determine how far off we were from the station. I helped with that set-up. Then we made the loop rotatable by turning acrank, reading the degrees to the station on a compass card. Then Bendix took the whole thing and made an ADF out of it.

Did I mention that Jeppesen started this little airway manual here and I used to go down into his basement apartment?. I would stop in a visit with him. He would be working on his airways, elevations of mountain tops and so forth. ..in his little black book. He sold some of these to pilots and there seemed to be a demand for them and it set him off.

K- It's a big business now.

J- It was agreat thing. And Jep was a good pilot. Jep was a fine pilot.

K- You had to be in those days

J- You know, there is one other facet of the early days, the real early days, that I didn't miss. The public looked up to these daredevil pilots, jthe pilots in coommand, so much that many of them sort of fell for it and started to believe they were really heroes. In fact, they were close to God in most cases.

Life of a co-pilot, or mate, in those days, youi can imagine the relationship between pilot and co-pilot. But, still at the same time, they were all human beings and as time went on a good rapport built up between the captain and co-pilot and everybody enjoyed each other. I particularly enjoyed all of them. There were some who were difficult to fly with because they would not let you do anything. And yet there were others who let you do a great deal of it.

That brings me to a question I wanted to bring up earlier. Once you left United and went out on your own and developed these numerous and assorted projects, didn't you feel a little isolated from the center of the development areas--or whatever you want to call them?

J- Yes, yes you

K- I think that would be the most difficult thing for a creative person to overcome--isolation.

J- Well, we were just so busy we didn't have a chance for it to bother us.

K- By the way, what made United leave Cheyenne?

J- Oh, that occurred in 1946 and there was very little choice in the matter. In order to take an airplane out of service and put it onto the overhaul bay and inject another one back into service, we had to delay people who were headed through and had no interest in Cheyenne. We had to delay them until we had completely unloaded the baggage, freight, everything and reload it into another airplane and send them off. As airplanes became larger--and we could see they were going to become larter--this would become a terribly expensive thing. They either needed to be in New York or some terminal where airplanes emptied themselves naturally. It's possible it could have been averted for the reason there were schedules which came in here and terminated. Probably could have been at Denver, not as well, but the selection was San Franciso. And since it wasn't here in the west, I decided that I didn't wish to go there. Now Frisco is a lovely place and all--but, my goodness, it's just so highly inhabited.

There were other things, I probably should have gone, but being a farm boy, sometimes you think you can make it on your own. So that's what happened.

There's one section I left out that may be of some interest. It was in 1939, we had been accepting DC-3s and putting them in our airline since 1937 and United had a full fleet of DC-3s. Douglas Aircraft had kind of been interested in the work I had been doing up here and asked if I could come down there and be with them for a year on leave from United. Jack Hurley agreed that it would probably be a good thing for all of us. I would get acquaianted with the manufacturing side and so on--so I went down there and did flight testing on the DC-5 airplane which was never manufactured--13 of them were built for the Marine Corps--but they were a high wing transport--a cycle gear! A beautiful little machine.

It was there I learned about politics in big corporations. The chief engineer of Douglas didn't like the chief engineer of El Segundo plant. And the El Segundo plant had developed the DC-5. It was finally scrapped--the program was scrapped as the result of this incident. Carl Colvert was the man who caused that to happen.

So I lost the little airplane I thought so much of. It would have to be larger, it looked then somewhat like and F-27, Fairchild F-27. In fact the F-27 is just a larger version of the DC-5 and it would be a great airplane for those times becase people could step into it with the rear loading ramp and all the sort of thing and it would load easily. It had all the attributes, but it was scrapped and I was really sorry about that.

After a year with Douglas Aircraft, I came back here. The war had set in and we started accepting all B-17s here for modification. They came straight from the factory, new, to Cheyenne and went through the modifications that were needed at the battle front here. Then they went to their battle stations.

K- What modifications were made here?

J- Well, what was requested mostly from the front lines was the relocation of some instrumentation, and all that sort of thing. Making it more convenient to do for bombing or what they had to do over seas. Then installation of the nose turret, the weaponry was installed. Boeing made the airplane and if they could install the the modification, they would. The main thing they did was make the machine so we would intall turrets, chin guns, everything else needed for bombing. We had 3,000 employees here and they ran 3,700 B-17s through the plant. In addition to that we ran a large number number of B-24s and PBYs.

We had four flight crews here and they were all fine hands. John Lovett, he's retired now with United, Captain. A boy named Gene Reynolds, he lost his life in Cleveland--a tornado--he flew into the side of a tornado and didn't realize it after take off and insufficient air speed.

Then the next thing that occurred, I don't know when it started, really, we moved the mod center to San Fransico. We set up a flight testing program out there, probably in 1944 when the war was going at it's height and prior to that I had started flying the Pacific with United's division of ATC. We flew the Pacific in C-87s which was the B-24 equipped as a cargo airplane. We flew to Australia.

K- Were you on active duty then?

J- No. Civilian but in a military uniform with a separate type of insignia....

K- That's funny. You still kept your reserve commission..

J- But there wasn't a reserve unit at Selfrage Field in Michigan so I couldn't very well get there (laughter)

K- No, I was thinking when you got overseas they would activate you.

J- Yes, now I wish it happened. But it didn't. Early in the war I became involved in training in the Training Command of the Army Air Force. I wrote the manual for the Troop Carrier Command and I made the movie you have seen. All Weather Flight Methods. The training command came here and saw it and asked me to come to Dayton and help train some crews there, which I did.

I really should have gone into the USAAF at that time and help take over that function because it was so important. But they did quite well with the material they had, but they told me that this method of flying an airplane and the movie and all helped save some lives and so forth.In those days we were doing the old full stall landing but that required experience and a high degree pf of skill. There wasn't time in war to learn that so that this method of establishing a stabilized approach to the airport, maintaining your air speed with power and directing your airplane to the end of the runway--it was a simple concept that they could grasp and quite quickly master. It, of course, treated all facets of flying in cross-wind landings, cross-wind take offs, the full gamuet of all the forces you could bring to bear to control the airplane in all conditions.

WAR TIME SERVICE: CRITICISM OF THE DAVIS WING ON C-87/B-24. TOO WEAK AND BADLY DESIGNED.

J- We heard all about that, too. To start with,. we were somewhat apprehensive concerning the Davis Wing on C-87s the Consolidated airplane and the B-24. But it behaved quite well and it didn't do anything remarkable to improve things. I think it was something to talk about more than anything else. It showed up better om the wind tunnel or something.

K- How long were you hauling freight in the Pacific?

J- Until the war ended. Matter of fact, when we started, we were going into Honolulu, Canton Island, New Caledonia and then the war started moving north. McArthur went into New Guinea and we just kept coming along with him.. Finally we were up to Guam and then our next move was into Okinawa, along with 40 other airplanes.

I was waiting in Okinawa to take McArthur's group into Japan at the very end of the war, but some more brass wanted to come out from the states, so they routed me back to the states to take the airplane avilable for them. So I didn't get to go to Japan. But, he came aboard my airplane the morning we were to leave for the states and inspected to see if it was ready to go into Japan. All of our boys had their clothes washed and hanging up on lines in the fusilage. But the airplane was clean and it was ready and we were ready to go. It was so hot and sweaty that you had to wash your own clothes.

K- The air never did dry out.

J- No. Oh my it was hot. You know, one of the remarkable things about all that early day flying out across the Pacific, we had to learn celestial navigation and that is not am easy subject. But we did it. Think of all those airplanes scurrying across the vast stretches of water and I don't know if we lost any.

K- In your particular group?

J- Oh yes there was one lost landing at Compton Island and a man from Cheyenne who was in the military was lost there. His name was Love. Louise Love's husband. Yes, he was riding with the pilot named Pickup. Pickup used to fly out of Cheyenne years ago. He was descending into pitch dark under hooded lights and because of Japanese attack. They got too low and dragging it in under power, hit too low. There was another one lost but it was a remarkable performance nevertheless.

K- Did you go through navigation school or did they give you a navigator?

J- We had a navigator, too, but if something would happen to him, so all the pilots had to have celestial navigation as well. It was a war-time training program, so it didn't take long to go through it (laughter). We had all the equipment, almanacs, etc. But I never had to use them.

There were several people from Cheyenne I visited fairly regularly. Peter Farrell was on Guam and Jimmy Wilson was in Honolulu. I would take things to them, clothes, and bring things back and things like that.

K- Favorite war story.

J- What I thought the most amusing, in retrospect, occurred about 3:30 in the morning coming from Kwajalein to Johnson Island. We were cruising along about 6,000 feet, which was customary in the Pacific, and Les Leach, who had been a test pilot here for me, decided he would like to have a trip across the Pacific. He got leave from the airline and went out as my co-pilot.

About 3:30 in the morning we were cruising along in absolute darkness so Les (it was my turn to kinda doze a little bit) with the sun coming up, its going to hit me in the eyes and you get awfully sleepy. So it hadn't come up yet so I was kinda getting ready for it. I thought I'd rest a little while. Les reached over and touched my shoulder. He was a kind of effervescent type of fellow amyway--a real nice person and real sharp, too. He said "somebody is signaling to us over there." I got out of my seat and looked over and down and immediately recognized the plumes of artillery fire. I knocked the airplane off of automatic pilot and pulled off to the left. About that time, these things started bursting ahead of us (much laughter) We flew through the cavitations. Nobody was signalling us. When you see those orange plumes of artillery, you never forget them. I was in the artillery unit at Purdue ROTC.

Another time we did a foolish thing. What had been happening was the Japanese subs would come up during the night. Their subs would come along 90 degrees to the shipping lanes that our ships were following, say to Kwajalein or the Solomon Islands, or wherever they where they were headed. Then, when daylight came, they would turn and go right down our shipping lanes,submarines, ships, submarine tenders, freighters, even battle ships. They knew we were sitting up there in airplanes and didn't know the little inconsistancies between their subs and ours . We knew the profile, we had profile training but that was as far as it went. So one day, we were cruising along, I think it was beyond Enewetok headed toward Guam, and I saw a submarine that was following a ship.

He was about five miles behind the ship. I thought it was a Japanese sub that would soon overtake one of our ships. So, I went down and circled the ship and we flashed signals trying to tell them in code. But, they didn't know our code as it turned out. We circled them twice that there was a sub on their tail following them. Then we went on our way and climbed up again. We called Kwajalein in code and told them about the Jap we had seen. When we got in, the Navy met us. They collected us at our airplane and took us in a briefing room. They discussed the matter with us, asking just what we had seem. Then they put up a screen on the wall and said, "our ships are here, and there, and there." Then they told us the ship we circled was Japanese!

K- TO RECAP:WHEN UNITED MOVED YOU PREFEREED TO STAY IN CHEYENNE.

J- Well, I enjoyed it here. You couldnt' find a finer group of people and we liked the mountains and the climate. It's beautiful country. It has different seasons, but nothing severe.

K- Well, you are just being a country boy, you just weren't satisfied living in a city.

J- Well, you'd be spending 30 minutes every morning and evening bumper to bumper with four lanes of cars, going south at night and north in the morning. That's just not a great thing to look forward to. But many people have to do it. But I didn't think I did.

Ralph came to Cheyenne in 1936 after the chief test pilot here was killed when his 249 iced up about thirty miles south of cheyenne.

J- I'll preface that United had its maintenance base for the whole system--right here at Cheyenne. They were all lost. So, since I was an engineer, a graduate engineer, they asked me if I would come out here as the test pilot for United. So I did.

K- In 1935.

J- I enjoyed it here. I'm glad I did. From that point on we had the most interesting period, I think, that anyone could live through in the aviation business because it was an accelerated struggle to try to improve almost every facet in the aviation industry. From the standpoint of the equipment, every single facet in aviation needed to up-grade into something that was reliable--a terribly interesting period.

While I was here I represented the Chicago Office. Mr. Ray Kelly was in charge of research and development and Bill Minster was the chief engineer for United. Ray Kelly was serving under him and they worked in conjunction with the base here. I was the liaison person who they worked with in improving just about every thing about an airplane from sparkplugs, oil, tires, brakes, screws, fasteners, every single thing you could think of--deicing and navigation equipment--everything. We had 124 separate tests going at one time. And all of these had to be followed up with proper entries of what was being done. The processing up with proper entries of what was being done, manufacture of the new pieces, mate things to the air plane. making service runs on the airplanes. That's where airplanes became what they are today.

And American Airlines did the same thing we were doing. A good many airlines depended on what work we did in Cheyenne. Like Northwest and so forth--kept a close touch with United and I thought of writing to Ray Kelly to ask him to consider writing a romantic story of the testing and improvements that were generated on aircraft during those years '35 to '40. You can't imagine what changes were made.

For instance the propellor. When I came to United it was a two position prop--high and low--then we conceived that it should automatically change its pitch as power was applied so we did that. But it wouldn't stay in sync because we didn't have the forces right.

K- Each blade or a pair of blades?

J- We found a spring to make them go in this direction and a spring with hydraulic pressure to go in another direction. Well, I'll tell you, they just wouldn't stay in sync so we kept working on this problem so we finally developed the constant speed prop which was all hydraulic--didn't have counter weights at all. Then we further developed the feathering prop as well. Do that was working for Hamilton-Standard but also Pratt and Whitny. We had 10 dozon tests running on different thigs from master rods, bearings to spark plugs, cylinders, de-icing equipment, all kinds of things going on.

K- What are you doing now in Bainbridge?

J- We're doing maintenance this time of year, but we are preparing--we'll be bidding on some forest protection work up in Maine. We also have several of our slurry aircraft in Bainbridge for maintenance and one of those will go on station in North Carolina and the other two will go on station Feb. 1.

K- Since the environmentalists shot you down on these fire ants, you've had to turn to fires--forest fires.

J- Yes, we have three now, shooting for four this year and we have nine aircraft flying.

K- From your ag spraying business and other various and assorted projects, I see some research articles you have written. You organized a consulting firm, my copies come from Aviation Week..

J- No, I wrote for Air Transport Magazine. But that was quite a number of years ago. Part of those writings were concerning flight methods which at the time needed improvement. Just to deal with brakes, spark plugs and anything else that needed improvement in those days--the early days--flight methods were not a thoroughly understood art, either. I had the advantage over most people. I had an engineering background and that helped in tackling the problems from an engineer's point of view.

Of course that meant basic analysis and we determined what would be the best method of flying an airplane under all types of weather, rainy conditions etc, and it turned out we were correct. We wrote this material up and prepared it for the military because the war broke out at that time. So we prepared the training manual for the air force (USAAF) for the Troop Carrier Command.

They saw the same film you did. They came here and worked with me to make their manual. Not altogether--they borrowed the film and so forth. I went to several air force bases demonstrating the roll on (wheel landing) and it became the standard throughout the world. It probably would not have become the standard now except for the big airplanes that came along. We just could not handle those things (single pilot) because they were too big and too heavy. It had to be done right. So, as a result our flight methods are done the same way at all times.

K- Do you think you'll get another chance at the fire ants and other ag applications in the near future?

J- Yes. We think fire ants will come back again. There's been a tremendous amount of work done on chemicals, bio-degradable and they think now that they have anaother chemical. I should say treatment. The minute you say "chemical", in a few days things become almost total shambles--on that basis we believe we'll get this thing going again. You've seen our books on that, haven't you?

K- Yes. In fact, NBC had a documentary on fire ants not too long ago.

J- I was that. I didn't see all of it, just the last few minutes. It seemed to be very good.

K- Yes. They showed some grotesque sights.

J- Oh, they are mean things--they will be all across the nation. I think we had the finest flight crews and the best maintained equipment for that kind of work in the country.

K- Just this last summer (1976) you had a contract in Texas and they cancelled out on you.

J- Yes, they did. The day we were to start operations, all the equipment was there, the pilots were there. Everything was ready to go and the government, I think it was the head of the Dept. of Agriculture, became afraid that the opposition of a few people down there who were associated with the environmental people would perhaps spoil his political future, so he cancelled the program.

K- Speaking of politics, you served two terms in the Wyoming House of Representatives. What motivated you to enter politics? I know you were interested in the GOP here.

J- I have the feeling that everyone should be prepared to serve what he feels he can. I, perhaps, would have liked to serve longer, but the economics of my business and the fact that my business took me out of Cheyenne, so after two terms, I decided to skip the next election and then the next term, I wasn't elected.

K- You're still involved in politics?

J- Yes, I'm very interested in people who are in politics. I stay in close contact with them. It's so easy to give away the assets of a nation and of a family. For that matter, I think eternal vigilance should be the guideline of every American, because our democracy is based on treating free people.

One wonders if that kind of society can, or administration can survive. Peoplle want many things they are not entitled to and don't deserve. They want things they haven't worked for. So in order to stay in office, they have to respond to all these segments of society. You see, now we have a greater segment of society taking more and more and doing less and less.

Even now, we have a situation where the government itself is sort of a make-work program. And working for the government is a form of make-work program. The government is paying the highest prices. Unless there is restraint somewhere on the part of every citizen in a democracy, it will eventually defeat itself. If I, as a citizen, am not willing to take an interest and do what I can do to at least slow it down and also try to make other people aware of it...

K- I know you've had a close relationship with Sen. Hansen over a period of many years.

J- I've always felt Sen. Hansen is an unusually remarkable man. High integrity and a very friendly and sincere person. Of course, Gov. Hathaway, as well. Gov. Hathaway is the most outstanding Governor I've seen. That's one reason I'm in Wyoming. I like these people..

One of the phenomenal things I've seen in my life is if a person really wants something, he gets help from all sources he never expected. Others know he really wants to do it. This is the most amazing phenomenon that I have ever witnessed. A lot of people think people are against them, but inherently, they are for them.

K- I experienced that in restoring that old L-5. I got help from you and people I have never heard about or hardly knew. Everyon contributed something.

J- True. It's a human phenomenon. A lot of people don't think it's there. They don't think it's true. If a person really wants something and people learn or know that a person is really striving for it, the direction--help will come from many, many sources.

Cheyenne is a remarkable experience. It was the route of the caravans--we might say--from East to West; Pony Express, the passage to the West. The passes caused it. You wouldn't have thought it would include the airlines, would you? But it was. Denver had no air transportation. We were flying shuttle trips to Denbver. The airplanes would land here, disgorge their passengers.

K- When you went into the aerial application business you used the DC-3.

J- Yes.

K- Then with the C-82 and the C-119.

J- Well, we had quite a run of aircraft. B-18, that was the bomber Douglas built during the war and the Canadians operated most of them. Boeing built the B-17 and then later the B-29 and a great many B-17s came through Cheyenne's modification center here.

K- You never used the B-17

J- No, I didn't.

K- Why?

J- They would be a pretty satisfactory airplane, but we were all limited in capital in those days. I had an opportunity to buy these PV-2s. I knew they were much more economical and they were good machines, too, so I went that route. Lockheed PV-2s, it turned out were the better choice. B-17s were being phased out. They developed some spar problems, etc.

K- Did youi ever run a single engine in your aerial spraying?

J- We had two of them for a time. Call-Airs. We bought them up at Afton, WY. We thought they would make fill-in work for our men in the summertime. But our pilots didn't seem to care for that work, so we sold them. We have operated on the fire ant problem in the southern states since 1958.

We put the first airplane to treat fire ants and it was a PV-2. It had special equipment that we developed. The next year, they went to a different kind of bait and we had to change our dispensing system. Really, I would say we were pioneers in furnishing adequate equipment for that kind of work. Each year, we would do approximately four million acres or more of that kind of work up until 1974. I believe the EPA decided to stop it.

It's just Hell to see all of this just abandoned and not for good reason. I don't think the EPA knows what the Hell they are doing. My God, all the EPA did was a waste of time. When you think of the time and money--the money--that has been wasted as the result of EPA's mismanagement, ;it's just tragic! EPA just destroyed the efforts of thousands of people--researchers, the chemical companies themselves--they worked for over ten years and spent millions of dollars and someone just slices them down for no good substantial reason. This cancer business is a scare tactic! Absolutely, just a scare tactic.

THE FOLLOWING IS AN EXCERPT FROM AN ARTICLE SUBMITTED BY CAPT. BILL WALKER, FRONTIER AIRLINES, RET., TO RUPA, THE NEWSLETTER OF RETIRED UNITED PILOTS ASSOCIATION VIA THE FORT WARREN EXPRESS, THE NEWSLETTER OF FT. WARREN FLIGHT NO. 54, ORDER OF DADAELIANS.

Ralph Johnson, Associate Member Nominated for Elder Statesman Award

There are several aviators, some still living, who are deserving of a place of honor for their historical contributions to aviation. No one person is more deserving recognition than Ralph Johnson. For many years, Ralph was the chief test pilot for United Airlines.

Ralph's flying career began in 1930 after having graduated from Purdue University with a BS degree in Aeronautical Engineering. His initial flight training was at March Field in Riverside, CA. From there he went to Kelly Field, San Antonio, TX. He flew DeHaviland DH-4 and Thomas Morse biplanes. In 1931, Gen. Wymam, 8th Corps (Western Region) Commander, named Ralph Johnson as his personal pilot. He flew Fokker Tri-Motor aircraft in this capacity for a year. By 1934, Johnson was a United Captain, flying the Fords and Boeing 247-Ds. He flew EVERY Boeing 247, DC-3 and DC-4 that United owned. It was around this time that Captain Johnson moved to Wyoming. For the past several years he has resided in Scottsdale, AZ where he helps shovel some Arizona sunshine. In 1935, following an extensive CAA Instrument crack-up in the Boeing 40-B, Johnson was named Chief Test Pilot for United. He was responsible for the testing of engines, instruments, radios, navigation systems, constant speed propellers, de-icing systems, all-weather flying techniques.

From 1940 thru 1943, Johnson supervised United's experimental work on pulasting boots for wings and heated leading edges for deicing and anti-icing. He test flew hundreds of Boeings B-17s modified by United's modification center in Cheyenne. Of particular note was a flight to Minneapoolis in a B-17. Weather reporting was less scientific then and Johnson was caught in a fast moving storm that left him no better alternative than to land on a runway covered with black ice. With no thrust reverse capability and braking nil, the aircraft was fast running out of available runway. Captain Johnson was able to use differential braking and engine thrust to skid the aircraft 180 degrees on the runway, resulting in the aircraft moving backwards down the runway he had just landed on. Johnson then adroitly added forward thrust, stopping the aircraft with only damage being his crew members nerves. Just one of many instances that made Ralph Johnson's airmanship legendary.

He truly is a pilot's pilot! There were three phases to Captain Johnson's career; Army Air Corps, United Airlines and General Aviation. His contributions were many and included all three phases. Johnson made a gift of one of his Lockheed PV-2s to the citizens of our country. It now resides at the Pima Air Museum in Tucson, AZ.

Johnson's tenure with United ended in 1947 with a new career born in agricultural flying. He developed several aviation companies and continued to promote aviation safety. He formed and operated Plains AirSurvey with his friend and aviation pioneer, Pic Walker and later, Master Equipment Company and Ralco. He was the head of Ideal Aerosmith.

Although he was a pioneer in aviation, Johnson is well known throughout the country for his many contributions in other areas. He is a Rotarian, board member of several companies and a husband, father and grandfather. His son, Alan, is a Federal District Judge in Cheyenne. Daughter Janet is involved in the artistic community. Steve, the youngest, is with the U.S. State Department after completing his duties as an Air Force pilot.

Ralph is in his 88th year now and remarkably young for his years. It would be wonderful to see him recognized for his contributions. He was named as an "Elder Statesman" in 1991.